VEKTRON® 6913 NOx REDUCTION STRATEGY IMPLEMENTATION OPTIONS

NOx EMISSION REDUCTIONS ACHIEVED THROUGH THE USE OF VEKTRON® ADDITIZED GASOLINE IN PASSENGER CARS AND LIGHT DUTY TRUCKS

Infineum USA L.P. produces gasoline additive packages trademarked Vektron®. A recently completed fleet test program has demonstrated that one such additive package, Vektron 6913, when used in gasoline powered passenger cars and light duty trucks, can reduce NOx emissions compared to conventionally additized gasolines.

The details of both the test program and the results are covered in several Infineum documents while the methodology for quantification of the benefit is discussed in detail in the Infineum document entitled:

'PROTOCOL FOR THE REDUCTION OF NOx THROUGH THE USE OF VEKTRON® 6913 GASOLINE ADDITIVE'

Once the NOx reduction quantification , as determined by the appropriate protocol methodology, has been recognized by the US Environmental Protection Agency, the Vektron 6913 NOx reduction strategy could be implemented via several economic incentive strategies. Careful exercise of a number of economic incentive strategies could make these NOx reduction benefits a reality to the environment. Infineum's preferred implementation approach would be to explore a number of these market mechanisms through a series of pilot or demonstration programs. located so as to gain wide geographical exposure while focusing on areas where the ultimate NOx reduction benefits would be most needed. These pilot programs would be designed to access the advantages and disadvantages of the various economic incentive alternatives and so define the ones that are most appropriate for further pursuit. In each case, it will be necessary to engage the cooperation of both local regulators and other commercial parties before the pilots can be initiated.

Included in the alternative economic incentive strategies to be investigated are:

Open Market Emission Trading

Open Market Emission Trading is an alternative approach to compliance and is aimed at maintaining the status quo as far as emissions are concerned. In trying to come into compliance, a source owner can either consider purchasing emission control technologies for the source or the purchase of emission reduction credits. For the past three years, Infineum has participated in a pilot program of this type in Ontario, Canada and has successfully demonstrated how the emission reduction benefits of Vektron can be used in this type of program. Initially, it is planned to expand this to the two U.S. states with existing Open Market Emission Trading programs. It is also hoped to further expand this later as other states introduce similar OMET programs to complement other local emission trading programs.

Voluntary Measures

At the present time, the Voluntary Measures policy limits strategies that fall under this heading to 3% of the total required reduction. If, for some reason, the voluntary measure should not materialize, the backstop, from an environmental perspective, is that the State involved is obliged to replace the emissions benefit shortfall.

Typically voluntary measures involve a lower level of control and monitoring. In the case of Vektron additized gasoline, the monitoring would be through the gasoline terminal as part of the VAR (Volumetric Additive Reconciliation) program (under Rule 211(L) of the Clean Air Act). This VAR program, which is more rigorous than typically found with Voluntary Measures strategies, requires each gasoline terminal to keep precise records of all the components used in the gasoline it ships and these records are submitted regularly to the US EPA. As Vektron would be added at the gasoline terminal, these records are already kept and submitted. Should separate submission to the State authorities be necessary, this should involve a minor extension of the present system. Thus the proposed monitoring is felt to be beyond the requirements of the voluntary measures program.

In addition, it is proposed that, some of the backstop onus might be placed on the entity (the terminal) using the Vektron. This would mean that, if the proposed reduction is not achieved, the entity might be partially responsible for the replacement of the shortfall. With this in place, it is hoped that it might be possible to extend the limit for this type of measure beyond the present 3%. This is important because many of the locations that could potentially benefit from this emission reduction strategy have already used up their 3% for voluntary measures.

Flexible Attainment Measures

Many cities throughout the United States have emissions problems and, although technically in attainment, one or more future ozone exceedance would mean a reclassification as non-attainment, a situation that these locations are very keen to avoid. The fact that the Vektron strategy can be applied on a terminal-by-terminal basis means that it can be considered as a strategy that can give very focused and localized impact. The area served by each gasoline terminal is very clearly defined. This means that the area to which the benefit can be expected to apply can be defined with equal precision. The potential to focus a strategy to reduce local NOx emissions just where required gives significant flexibility to these geographical areas.

Such a strategy might well be piloted on a city-by-city basis.

Alternative Compliance Strategy

Many utilities and other major stationary sources are currently seeking ways to reduce emissions either directly through the installation of control equipment or indirectly through a reduction in their emission responsibility.

These indirect reductions of emission responsibility could involve many strategies whereby the sources generate absolute emission reductions for which they are directly financially responsible even though they may not involve the installation of control equipment on their own facilities. An example might be a situation where a utility would purchase a fleet of natural gas powered buses for use by the local transit system to replace the current diesel powered fleet. The fleet would generate reduced NOx emissions and the utility would be financially responsible for the reduction.

Similarly, the utility might wish to be financially responsible for the use of Vektron additized gasoline in a geographical area where NOx reductions were required and claim these reductions as part of a reduction in the emissions for which it is responsible.

Offset Credit Trading

Offset credits are required when a new source wishes to get a permit to operate or an existing major source wishes to make an expansion. These credits are then used to offset the increase in emissions that will occur. Depending on the distance between the new source and the location where the credits are generated and the direction of the air flow between the two locations, it may be necessary for the new source to purchase more than one ton of offset credits for each ton of additional emissions from the new or expanded facility.

An issue with offset credit trading could be the subject of ‘permanence’. Offset credits have to be established in perpetuity and if it was the intention that these credits would be generated through the use of Vektron, then the question may rise as to how would the availability of these credits be guaranteed in perpetuity? The simplest, but not necessarily the only answer, would be to have the source owner write long term contracts with gasoline marketers as suppliers of credits. Alternatively the source owner could purchase the additive directly.

Having once established that it would be given to a gasoline marketer and incorporated into gasoline at a terminal, the emission reductions would be generated. Thus, one solution to the issue would be for the source owner to contract to purchase the additive for the required period of time.

Offset banking is already established in several states.

Financial Offset programs

The concept here is again one of financial responsibility for the creation of emission reductions. Infineum might enter into a normal agreement with a gasoline marketer to supply the Vektron additive. In turn the gasoline marketer would incorporate the additive at the terminal and keep records according to the VAR program. At year end (or the end of the ozone season), the gasoline marketer would compute the number of tons of NOx emission reductions that had been generated and would sell or donate these 'credits' to the state or to the State Economic Development Corporation. In return, the gasoline marketer would be paid by the state or the economic development corporation or given a tax credit equivalent to the value of the emission credits donated.

The emission reductions generated in this manner might be used in offset situations as they will allow economic growth that might not otherwise be possible.

State Economic Development Corporations

This is an expansion on the option just discussed. However, the intent here would be that the SEDC would purchase the emission reduction credits from the gasoline marketer for use in offset situations. The financial justification for such a purchase would need to be quantified and may vary from situation to situation. However, if the locating of a new manufacturing facility had to be declined for environmental reasons, then there would be several losses of income. These might include a loss of taxation income from the corporation; a loss of personal taxation income from the employees that would no longer be employed by the corporation as well as the unemployment payments to those same individuals. Loss of income from services provided would also occur as well as the potential for peripheral benefits the corporation may bring to the community. These costs would need to be offset against the cost of the emission credits to establish justification for the SEDC to actually purchase the credits.

The SEDC could either retain the credits for direct use or sell them to the state. If appropriate, the financing might also be handled through various other channels including bonds, Clean Air Investment Fund and the like.

Cap & Trade

In general, this type of trading program is closer to command and control and is aimed at reducing overall emissions. The trend in non-attainment areas is towards cap & trade because this strategy is aimed more at bringing a region into compliance than maintaining an attainment situation. At the present time, cap & trade programs are limited to large stationary sources.

However, indications are that, if it can be achieved in a way that maintains the integrity and credibility of the cap & trade program, there is a desire among both the regulators and the environmentalists to include the mobile source sector. It is believed that the Vektron additized gasoline strategy might potentially allow this to happen.

Gasoline additives are incorporated into gasoline at a gasoline terminal. This terminal typically serves an area of approximately 100-mile radius of the terminal itself. The terminal presently keeps records under the VAR (Volumetric Additive Reconciliation) program aimed at controlling the use of detergents in gasoline. Terminals must keep records showing the composition, volume and destination of each shipment. In this way, any gasoline shipped containing Vektron additive will automatically be recorded. These records are submitted regularly to the EPA. If it were appropriate, they could presumably be submitted to the State as well.

The concept would be to consider the gasoline terminal as a stationary source with a calculable emission responsibility. This responsibility could be computed from the volume and unit emissions of each type of gasoline shipped. Gasoline shipped with Vektron would then be eligible for the generation of credits according the protocol. This would then allow the terminal to increase its shipments without penalty and so grow its business. The terminal would need to opt in to the cap & trade program unless it was mandated to participate.

It is believed that this strategy would allow for at least this part of the mobile source sector to participate in the cap & trade program without negatively impacting the integrity. The terminal does not move and has a clearly definable emissions responsibility.

This is probably the one strategy that would benefit most from a pilot program. However, before such a program could be initiated, it would require the buy-in of all appropriate regulatory departments so that the value and trade-ability of the credits generated could be pre-agreed in return for the lessons learned.

Information Strategies

This is a strategy that would need to be progressed with the help of US EPA.

If EPA would be willing to design a labeling system that emphasized the environmental benefits of using Vektron additized gasoline, these could be used to encourage the general public to voluntarily purchase this type of gasoline in preference to others that did not give the same benefit. By monitoring usage in the same way as described above, the absolute emission reductions could be computed and the state could possibly claim the credit as part of its SIP.

Currently the Energy Star® Program is in place and the Vektron strategy might be either included in this program or set up as a separate program.

General Comments

Once recognition had been received from the US EPA regarding the protocol for quantifying the emission reduction benefit achieved from the use of Vektron 6913 in gasoline, Infineum intends to move forward on several of these economic incentive strategies.